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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,963	11/21/2003	Sumio Ashida	008312-0306969	8024

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EXAMINER	
ANGEBRANNDT, MARTIN J	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,963	ASHIDA ET AL.	
	Examiner	Art Unit	
	Martin J. Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/10&4/29/05&11/21/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/10&4/29/05&11/21*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"v" does not appear in the formula

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1,2 and 4-8 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Kojima et al. '466.

Examples 1 describes a substrate, a first dielectric layer, the recording layer, a second dielectric layer, an optical compensation layer and a reflective layer with a UV cured adhesive layer to adhere the protective layer applied over this. The recording layer is $Ge_{27}Sn_8Sb_{12}Te_{53}$ (39/52-40/65) sample 1-3 uses hafnium oxide for the dielectric layers. (40/18 and table 3 in

column 43) The hafnium is described as having good overwrite characteristics. Examples 2-9 through 2-12 in table 4 add ZnO, CrO, ZnS or LaF to the dielectric layer. The examples in table 10 also include hafnium oxide.

6. Claims 1,2 and 4-7 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Inase et al. '495.

Example 8 describes a substrate, a first dielectric layer, the recording layer, a second dielectric layer, an optical compensation layer and a reflective layer with a UV cured protective layer applied over this. The recording layer is $Ge_2Sb_2Te_5$ [0061]. Example 9 sample3 adds hafnium oxide to the dielectric layers. [0063].

The claims open with comprising language and do not further close the language relating to the interface/dielectric layers.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Nishihara et al. '473.

See claim 1.

The claims open with comprising language and do not further close the language relating to the interface/dielectric layers.

8. Claims 1,2 and 4-8 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Kojima et al. '069.

Examples 1 describes a substrate, a first dielectric layer, the recording layer, a second dielectric layer, an optical compensation layer and a reflective layer with a UV cured adhesive layer to adhere the protective layer applied over this. The recording layer is $Ge_{27}Sn_8Sb_{12}Te_{53}$ [0246-0258]. Sample 1-17 uses hafnium oxide for the dielectric layers and example 1-19 uses

hafnium and silicon dioxides ([0258] and table 3 on page 25). The hafnium is described as having good overwrite characteristics. Examples 2-9 through 2-16 in table 4 add ZnO, CrO or ZnS to the dielectric layer. The examples in table 6-2 also include hafnium oxide. The use of zirconia is also disclosed throughout.

9. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Oomachi et al. '908.

See example set forth in [0093]. Useful interface layers materials are disclosed including HfO2 and CeO2 [0053]. An optical recording medium having multiple recording layers is disclosed with respect to figure 16 in section [0105].

10. Claims 1-5, 9-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oomachi et al. '908.

It would have been obvious to one skilled in the art to modify the cited multiple recording layer example of Oomachi et al. '908 by adding interface layers of HfO2 and/or CeO2 with a reasonable expectation of gaining the benefits ascribed to this in section [0053].

11. Claims 1-5, 9-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oomachi et al. '908, in view of Kojima et al. '069

It would have been obvious to use other GeSbTe recording layers, such as those disclosed by Kojima et al. '069 in place of those in the media rendered obvious above with a reasonable expectation of forming useful optical recording media.

12. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitaura et al. '681

Kitaura et al. '681 teach phase change optical recording medium adapted to be read from the topside, where a reflective layer (19), a protective layer (18) an interface layer (17), a GeSbTe recording layer, a second interface layer (15), a upper dielectric (14) and a polycarbonate sheet as a protective layer. The first interface layer is an oxide of Hf, Ti, Zr, V, Nb, Ta, Cr, Mo, W and Si (claim 2). The use of vaious materials for the recording layer is disclosed. (7/24-28).

It would have been obvious to one skilled in the arts to modify the cited examples mby using HfO_2 in place of the other oxides used in the interfacial layers with a reasonable expectation of forming an useful optical recording medium.

13. Claims 1-7,9-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinotsuka et al. '418, in view of Kasami et al. '221 and Kitaura et al. '681.

Shinotsuka et al. '418 teach a topside phase change optical recording medium, where lower dielectric layer (102) was formed, a 30 nm interface layer, a GeSbTe recording layer, a second interface layer (105), a upper dielectic (106), a semireflective layer (107),a intermediate layer of ITO (108), a separation layer (109), a lower dielectric layer (202) was formed, a 30 nm interface layer, a recording layer, a second interface layer (205), a upper dielectic (206), a reflective layer (207) and a substrate. [The interface layer can be various oxide, nitrides, oxygen nitrides, carbides, fluorides and the like [0063]. The intermediate layer can be various materials which have heat dissipation properties. [0101].

Kasami et al. '221 teach phase change optical recording media where the layer arrangement allows for irradiation through the substrate. (see figures 1 and 2). The use of $Ge_2Sb_2Te_5$ recording layers is disclosed. (3/25).

It would have been obvious to modify the cited example of Shinotsuka et al. '418 by using materials known to be useful as interface materials with GeSbTe recording media such as oxides of Hf alone or with Zr, V, Nb, Ta, Cr, Mo, W, Ti and Si disclosed by Kitaura et al. '681 and to use the inverted structure, where irradiation passed through the substrate, rather than the protective layer based upon this being a known alternative within the art as evidenced by Kasami et al. '221. Further, it would have been obvious to use $Ge_2Sb_2Te_5$ recording layers in the resulting medium with a reasonable expectation of forming a useful optical recording medium.

14. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinotsuka et al. '418, in view of Kasami et al. '221 and Kitaura et al. '681, further in view of Kojima et al. '466.

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the medium resulting from the combination of Shinotsuka et al. '418 with Kasami et al. '221 and Kitaura et al. '681 as set forth above by using the $Ge_{27}Sn_8Sb_{12}Te_{53}$ recording layers in the resulting medium with a reasonable expectation of forming a useful optical recording medium.

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 1-5, 9-17 and 21are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 7,008,681. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the issued patent include the case where Hf oxide is used as the interface layer material (see claim 2 in particular).

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hibino et al. '768 and Ohno et al. '915 teach Cerium oxide containing interfacial layers

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Martin J Angebranndt
Primary Examiner
Art Unit 1756

4/21/2006